REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1 and 6-20 are currently pending, with Claims 7-18 being withdrawn as directed to non-elected inventions. Claims 2-5 have been canceled without prejudice; Claims 1 and 6 have been amended; and Claim 20 has been added by the present amendment. The changes and additions to the claims are supported by the originally filed specification and do not add new matter.

In the outstanding Office Action, Claims 1-6 and 19 were rejected under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent No. 6,415,041 to Oami et al. (herein "the '041 patent").

Amended Claim 1 is directed to a digital watermark embedding apparatus which generates an output image signal by embedding a digital watermark signal in an input image signal, comprising: (1) a detector which detects a signal characteristic of at least one of the input image signal and the output image signal; and (2) a control device configured to control an embedding intensity of the digital watermark signal with respect to the input image signal in accordance with the signal characteristic. Claim 1 has been amended to incorporate the limitations recited in Claim 5. In particular, Claim 1 has been amended to clarify that the detector includes a first detector that detects a signal intensity of the digital watermark signal which is extracted from the output image signal; and a second detector which detects an activity indicating complexity from at least one of the input image signal and the digital watermark signal, and the control device controls the embedding intensity of the digital watermark signal with respect to the input image signal based directly on the detected signal

intensity and the detected activity. The changes to Claim 1 are supported by the originally

filed specification and do not add new matter.[1]

Applicants respectfully submit that the rejections of Claims 2-5 are rendered moot by

the present cancellation of those claims.

Applicants respectfully submit that the rejection of Claim 1 is rendered moot by the

present amendment to that claim. However, since Claim 1 has been amended to incorporate

the limitations recited in Claim 5, Applicants will address the rejection of Claim 5.

The '041 patent is directed to a digital watermark insertion system that automatically

calculates a digital watermark strength suitable to an input image and inserts a digital

watermark into the image. As shown in Figure 1, the '041 patent discloses a category

classification section 103 that classifies input images and outputs category indices, as well as

a storage device 101 that stores digital watermark characteristic tables describing the

relationship between digital watermark strength, image-quality degradation degree, and

attack-resistant evaluation values categorized by category index. In particular, the '041

patent discloses that a digital watermark characteristic table is selected based upon the input

category index and that an image quality degradation degree $D(m)$ and resistant evaluation

value $V(m)$, which vary according to a digital watermark strength m, are output from the

table. In particular, the '041 patent discloses that the digital watermark strength calculation

section 100 optimizes an objective function $Z(m)$ that is a combination of the degradation

degree $D(m)$ and the resistant evaluation value $V(m)$ by selecting a strength m that

maximizes $Z(m)$.[2]

Further, as shown in Figure 5, the '041 patent discloses that the digital watermark

detection section 202 detects the digital watermark of an attacked image output from the

attack execution section 201, and then outputs the detection result to the digital watermark

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[1] See, e.g., original Claim 5.
[2] See formula 3 in column 8 of the '041 patent.

characteristic table creation section 205. Thus, the '041 patent discloses that the resistant evaluation value against attacking V is based upon an <u>attacked image</u>, and is not based upon the output image signal. Further, as shown in Figure 1, the digital watermark strength calculation section determines that the optimal digital watermark strength based on the <u>digital watermark strength constraint information</u>, in addition to the <u>image quality degradation degree</u> and the <u>resistant evaluation value</u>.

However, Applicants respectfully submit that the '041 patent fails to disclose <u>a control device that controls the embedding intensity of a digital watermark signal with respect to an input image signal based directly on a detected signal intensity and a detected activity</u>. Rather, as discussed above, the '041 patent discloses the calculation of an optimal digital watermark strength based on digital watermark strength constraint information, an image quality degradation degree, and a resistant evaluation value. See the '041 patent, Figure 1. The '041 patent does not disclose controlling the embedding intensity based directly on the detected <u>signal intensity of a digital watermark signal</u> constructed from an output image signal, as required by Claim 5. Rather, the '041 patent discloses that the optimal digital watermark strength is based upon the resistant evaluation value against attacking, which is based upon an attacked image.

Accordingly, for the reasons stated above, Applicants respectfully submit that amended Claim 1 patentably defines over the '041 patent.

Independent Claim 6 has been amended to recite limitations analogous to the limitations recited in amended Claim 1, with the exception of the control device. In particular, Claim 6 clarifies that <u>the control device controls the embedding intensity of the digital watermark signal with respect to the input image signal based directly on the detected image quality degradation degree and the detected activity</u>.

As discussed above, the '041 patent discloses, in Figure 1, the calculation of an optimal digital watermark strength based upon (1) a digital watermark strength constraint information, (2) an image quality degradation degree, and (3) a resistant evaluation value. However, the '041 patent does not disclose a control device that controls the embedding intensity of the digital watermark signal with respect to the input image signal based directly on the detected image quality degradation degree and the detected activity. For example, the '041 patent does not disclose that the embedding intensity is controlled based directly on the detected activity, as required by Claim 6. Accordingly, for the reasons stated above, Applicants respectfully submit that Claim 6 patentably defines over the '041 patent.

Further, Applicants note that Claim 19, which depends from Claim 6, clarifies that the control device generates an embedding intensity control signal as a product of a first embedding intensity adjustment quantity and a second embedding intensity adjustment quantity. In this regard, Applicants note that the Office Action on page 4 states that this limitation is disclosed by the '041 patent in the disclosed digital watermark characteristic table, which the Office Action reads on the claimed "product." However, it is unclear to Applicants how the table disclosed by the '041 patent can read on a product of two quantities, as recited in Claim 19. Accordingly, for this additional reason, Applicants respectfully submit that Claim 19 patentably defines over the '041 patent.

The present amendment also sets forth new Claim 20 for examination on the merits. New Claim 20 clarifies that the control device controls the embedding intensity of the digital watermark signal based only on the detected signal intensity and the detected activity. As discussed above, the '041 patent discloses that the optimal digital watermark strength is based on the digital watermark strength constraint information, the image quality degradation degree, and the resistant evaluation value. Accordingly, Applicants respectfully submit that new Claim 20 patentably defines over the '041 patent. Further, Applicants respectfully

submit that new Claim 20 is supported by the originally filed specification and does not add

new matter.[3]

Thus, it is respectfully submitted that independent Claims 1 and 6 (and all associated

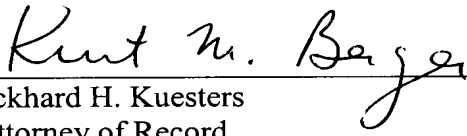dependent claims) patentably define over the '041 patent.

Consequently, in view of the present amendment and in light of the above discussion,

the outstanding grounds for rejection are believed to have been overcome. The application as

amended herewith is believed to be in condition for formal allowance. An early and

favorable action to that effect is respectfully requested.

Respectfully submitted,

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[3] See, e.g., Figure 4 and the discussion related thereto in the specification.